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LEADING ARTICLE

Vascular Surgery in Norway

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Norway is beautiful! I can make that statement without bias. Fjords with perpendicular walls, sometimes several thousand feet high, cut deeply into the rugged West Coast facing the Atlantic. Rivers and waterfalls chisel a variety of valleys and canyons through rocky mountains. Reindeer roam the tundras, moose are abundant and pose a danger to traffic during the winter; bears, wolves and lynxes are there, but rarely visibly. At the North coast eagles and whales can be spotted. Winters are long with little daylight and during the summer the sun does not disappear below the horizon. Norway is more than 2000 km long: North Cape is as far from the capital Oslo as Rome. There is plenty of space for 4.5 million Norwegians, mostly Social Democrats, who love the outdoors: cross country skiing, hiking, hunting and fishing. The king and his family are very popular and symbolise the country's independent status, obtained from Denmark in 1814 and from Sweden in 1905. The relatively high standard of living in this young state is closely linked to the success of the off-shore oil industry.

Are there any vascular surgeons out there? Yes, even near the Polar Circle, where the world's most Northern University Hospital in Tromsø boasts an active department of Thoracic and Vascular Surgery. A Norwegian pioneer among vascular surgeons was Ragnvald Ingebrigtsen. In 1912 he successfully performed autotransplantation of the carotid artery in cats after having been an associate of French Nobel prize winner Alexis Carrell. The names of two other Norwegian vascular surgeons will sound familiar to European colleagues. Karl V. Hall was the first to introduce the *in situ* venous bypass technique in 1962[1] and his venous valve stripper is still widely used. Hans O. Myhre was the first president of the European Society for Vascular Surgery (ESVS).

Norway needs vascular surgeons because the incidence of symptomatic atherosclerosis is higher than in several other European countries. The medical community has been actively promoting prevention of this disease. The so-called 'Oslo Study' on the effect of diet and abstinence from smoking, with a follow-up of more than 8 years, has received international acclaim.[2]

Of the 12 000 doctors in Norway 65 are certified vascular surgeons. About half of them are also specialised in thoracic surgery and are mainly occupied in this field. Private practice for surgeons is virtually non-existent within socialised medicine. This medicare system has been beneficial for most people, but due to economic strains it obviously cannot cope with the present day demands from patients and doctors. Nonetheless the government discourages private initiatives to solve the problem of long waiting lists for treatment of non-lifethreatening diseases and disabilities. Vascular surgeons work for fixed wages and fixed hours, which vary between 40–46 per week including night duties. Needless to say, many of them work more than that.

Vascular surgery in Norway started in the mid 1950s. In 1978 the number of operations was 500 per million inhabitants annually and is today approximately 1000. These are performed at 56 different hospitals, of which 22 do fewer than ten procedures per year, mainly emergency embolectomies. The incidence of vascular surgery varies greatly among the nineteen provinces: between 400 and 1200 operations/million inhabitants/year.[3] Because it has been the policy to maintain many small-sized hospitals to serve

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the people in this large, sparsely populated country, general surgery is a speciality which is alive and kicking. However, the type of surgeon still performing orthopaedic, urologic, gynaecologic and vascular procedures is becoming rare.

Due to improved communications by road and a well organised helicopter service, patients can now be transported to larger, more centrally located hospitals. Their updated equipment and qualified staff can provide the patient with optimal care. Several Norwegian studies have indicated that a greater work load may lead to better quality. Many hospitals have a vascular surgeon on their staff. However, single vascular practice puts a great strain on the surgeon and has proved to be unsatisfactory in the long run. The Norwegian Society for Vascular Surgery has advised National Health Authorities to plan for vascular units with a staff of two or three specialists which will serve a population of at least 150000.

Originally the greater part of vascular surgery was done by specialists in thoracic surgery at a few large medical centres. Eventually they had to take care of a drastically increasing number of patients with coronary disease which had become a political priority. Because of this and the fact that general surgeons were taking care of an increasing load of vascular surgery all around the country, the Norwegian Medical Association found it appropriate to confirm vascular surgery as a subspeciality in 1986. The majority of thoracic and vascular surgeons voted in favour of the establishment of two specialities because this would optimally benefit the further development of both these surgical fields. Vascular surgeons felt that their patients needed more attention from society. The term 'cardio-vascular' was in public consciousness synonymous with 'cardiac' and when economic funding was allocated, the group of patients with peripheral atherosclerosis was hardly mentioned.

To become a specialist in vascular surgery requires 4 years of training in general surgery and 3 years in vascular surgery at an authorised institution. Six such centres are University hospitals and two are major regional hospitals. Certification involves no final examination but compulsory participation in courses, some of which include a written test, in addition to an accomplished list of a minimal number of vascular procedures done as a first surgeon and as an assistant.

The Norwegian Society for Vascular Surgery (NKKF) was established in 1990 and comprises vascular and general surgeons, but also interventional radiologists, thoracic surgeons and some angiologists. One of the tasks of the Society is to inform Health Authorities and the general public about 'the vascular patient'. This includes prevention of disease, future investments to provide patients with optimal treatment at lower costs. The Norwegian Medical Association is advised on matters like education and certification. The Society organises two scientific meetings per year; one in Oslo as part of the annual meeting of The Norwegian Society of General Surgery in October. The other gathering is held at Geilo, a mountain village, during the last weekend of February. About 70% of the 110 members of the Society participate and many are accompanied by their families. The aim of this meeting is a high standard scientific programme before noon and during the late afternoon, combined with leisure time for skiing during midday and social activities in the evening. This combination has been successful and has also attracted foreign colleagues, who are most welcome.

In the future educational requirements for vascular surgeons are probably going to include practical knowledge of non-invasive diagnostic techniques and endovascular surgery. Although it seems likely that the majority of Norwegians are going to vote against membership of the European Union, we are not isolationists and wish to participate when Europe draws up regulations for education, certification and quality standards. As in other countries, audit and outcome are hot topics, partly because economic restraints have hit health institutions hard. This forces vascular surgeons to decide which patients should be examined and treated how, where and by whom. Screening for abdominal aortic aneurysms is already an issue for debate. There is a danger that hospital managers will try to interfere in clinical decision making. Questions like 'Should we put an age limit on operations for aortic aneurysms to save money?' are going to be asked. The efficiency required from clinicians is sometimes approaching a dangerous level. Most vascular surgeons loyally cooperate in economic saving, but they should also demand, especially at University Hospitals, that time and space is made available for relevant clinical and epidemiological research. To reduce costs different research centres will have to cooperate more effectively and basic and clinical research should be integrated to a greater extent.

Endovascular surgery comprises 17% of vascular procedures in Norway as compared to 30% in Finland.[4] However, our vascular registries show that interventional radiology for iliac arteries is increasingly replacing conventional vascular surgery. Interventional radiologists and vascular surgeons will continue to collaborate together with newly established vascular laboratories which need qualified personnel. The proportion of distal bypass surgery

will increase, and we must learn to select the right patients for this operation. Compared to other Western countries carotid surgery has not increased even after the publication of the very convincing results from the European and American Carotid Trials. General practitioners need still more information on referral of patients with TIA for a Duplex scan instead of only prescribing aspirin. Most of these goals are best obtained by centralising vascular surgical services to larger units, even though it means that patients may have to travel more. Special and relatively rare procedures, e.g. operations for thoraco-abdominal aneurysms, should be allocated to only one or two centres.[3]

Of course no exact figures can express the 'need' for vascular surgery in the coming years. A committee appointed by The Norwegian Board of Health estimated that 1200–1500 vascular operations/million inhabitants/year will be necessary in the coming decade.[3] In the USA the number is 2500.[5] Real needs are difficult to define and depend on, for example, indications, availability of treatment, demands by patients etc. Differences in number of performed operations between countries have to be interpreted cautiously. The numbers of operations for vascular trauma in two affluent societies, U.S.A. and Norway, speak for themselves: 275 and 26 per million inhabitants in 1986, respectively.[5, 3] This is a reminder for everyone including vascular surgeons, that our real goal is to make this planet a safe place in which to live. What role do we play and what are our real motives for competing: patients, science or self-advancement? Can good quality be obtained without competition, just for its own sake? To only treat the vascular system without going beyond, is that not a waste?

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